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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/092,577	03/08/2002	Manwinder Singh	4320-395	1428

1059 7590 02/17/2004

BERESKIN AND PARR
SCOTIA PLAZA
40 KING STREET WEST-SUITE 4000 BOX 401
TORONTO, ON M5H 3Y2
CANADA

EXAMINER

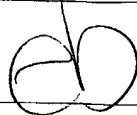
MENON, KRISHNAN S

ART UNIT PAPER NUMBER

1723

DATE MAILED: 02/17/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	10/092,577	SINGH ET AL. 	
	Examiner	Art Unit	
	Krishnan S Menon	1723	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 26 January 2004.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 5-10 and 12 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 5-10 and 12 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

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DETAILED ACTION

Claims 5-10 and 12 are pending.

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claim 5 is rejected under 35 U.S.C. 102(b) as being clearly anticipated by, or in the alternative, as obvious over Cote et al (US 5,607,593).

Cote et al teaches a water filtering process comprising providing a tank (1, fig 1) containing filtering membranes (3), introducing feed water and keeping the modules submerged (4; col 9 lines 20-25), withdrawing filtered permeate (10) and retentate (28), introducing AIR bubbles in the water to inhibit membrane fouling (col 4 lines 18-25, col 3 lines 27-32, col 5 lines 53-55, col 4 line 66 – col 5 line 13, and col 7 lines 37-58), collecting and recycling the gases by way of air bubbles (col 4 lines 32-60). Re the recycling of 'gases being liberated form the water', 'gases liberated from the water' is an inherent property of the water and as such would get recycled with the recycle stream (the oxidation of the biodegradables (col 6 lines 22-28) would inherently produce gases, typically carbon dioxide). When the prior art device (in this instance, a device that bubbles air in water) is the same as a device described in the specification for carrying out the claimed method, it can be assumed the device will inherently perform the claimed process. In re King, 801 F.2d 1324, 231 USPQ 136 (Fed. Cir. 1986). The

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express, implicit, and inherent disclosures of a prior art reference may be relied upon in the rejection of claims under 35 U.S.C. 102 or 103. "The inherent teaching of a prior art reference, a question of fact, arises both in the context of anticipation and obviousness." In re Napier, 55 F.3d 610, 613, 34 USPQ2d 1782, 1784 (Fed. Cir. 1995) (affirmed a 35 U.S.C. 103 rejection based in part on inherent disclosure in one of the references). See also In re Grasselli, 713 F.2d 731, 739, 218 USPQ 769, 775 (Fed. Cir. 1983).

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 6-10 and 12 are rejected under 35 U.S.C. 103(a) as being unpatentable over Cote (593) in view of Dickerson et al (US 6,221,254 B1).

Cote teaches all the limitations of claim 5. Claims 6 -10 add further limitations, which are not taught by Cote, but taught by Dickerson as follows: Gases include CO₂ up to 80% in claims 6 and 7 (col 6 lines 30-35; abstract; col 5 lines 4-59; claim 1). It would be obvious to one of ordinary skill in the art at the time of invention to use the teaching of Dickerson in the teaching of Cote to have improved filtration including pH control, coagulation, precipitation, and then floatation of biological contaminants in the water using microfine bubbles of CO₂ gas (see Dickerson col 5 lines 4-60; with use of filters in col 9 lines 55-65).

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Regarding Scaling tendencies in claim 8 and the Langlier Scaling index >0.5 in claim 9, it would be obvious to one of ordinary skill in the art at the time of invention that hard water has scaling tendencies and that the hard water of Langlier scaling index 0.5 is naturally occurring.

Regarding claim 10, Cote teaches adding coagulants to the feed water in the tank (col 1 lines 20-25; col 2 lines 29-35)

Re claim 12, partial recycle of CO₂: Cote in view of Dickerson does not specifically teach how much of the used gas stream would be recycled. However, it would be obvious to one of ordinary skill in the art at the time of invention that the amount of gases recycled would be to meet the volume flow and the concentrations (eg., that of CO₂) in the gas stream, and therefore, could be optimized. Discovery of an optimum value of a result effective variable in a known process is ordinarily within the skill of the art. In re Boesch and Slaney, 205 USPQ 215 (CCPA 1980); In re Antonie, 559 F.2d 618, 195 USPQ 6 (CCPA 1977); In re Aller, 42 CCPA 824, 220 F.2d 454, 105 USPQ 233 (1955).

Response to Arguments

Arguments re the Cote ref: (1) does not describe a device adapted to reinject the recovered ozone back into the installation: Col 4 lines 45-48 clearly states that the recovery and reinjecting of ozone is advantageous. The reference lines the applicant cited indicates a hood for recovering ozone, from which hood, it could be directed to destruction, or re-injection. There is nothing in the reference to indicate that the hood

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12 of the figures 1,7 or 8 cannot direct the ozone to be re-injected. Ozone injection means are described at different places in the reference, such as in col 4 and in col 6 lines 1-31. Along with recirculating ozone, the system could recirculate gases inherently present in the ozone or liberated from the water. (2) Cote does not provide introduction of air bubbles: see col 5 lines 45-64 where air is introduced through the permeate side in a back-flush mode, and also through the ozone injection circuit. It may also be noted that "ozone" itself is mostly air, because ozone is commonly generated from air (<http://www.indoorpurifiers.com/ion-ozone.htm>). (3) Argument that: "Firstly, the Applicants submit that the ozone referred to in column 4, lines 45-48 of Cote is not a gas liberated from the water in the tank in step (e) of claim 5. Secondly, column 4, lines 45-48 of Cote do not state that the ozone is returned to the tank by way of the air bubbles. The phrase "the air bubbles" refers to the air bubbles introduced in part (e) of claim 5 which are air bubbles introduced into the tank water to inhibit fouling of the membranes. Since Cote does not disclose these two aspects of claim 5, the Applicants submit that Cote cannot anticipate claim 5." In response: Examiner did not say that the gas liberated from water is ozone. Re air bubbles being introduced for inhibiting fouling, see col 3 lines 27-32, which states that ozone serves as both circulation fluid and oxidation fluid, and circulation fluid would increase flow or agitation to prevent fouling. Cote also teaches air bubbles (see above).

Applicant's arguments from the Dec 16,03, response on the 103(a) rejections of claims 6-10: the examiner reiterates the response to this argument.

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In response to applicant's argument that Dickerson ref is concerned with preventing escape of a gas for recycling, does not teach inhibiting fouling, and does not teach collecting gases liberated, the fact that applicant has recognized another advantage which would flow naturally from following the suggestion of the prior art cannot be the basis for patentability when the differences would otherwise be obvious. See *Ex parte Obiaya*, 227 USPQ 58, 60 (Bd. Pat. App. & Inter. 1985).

In response to applicant's argument that there is no suggestion to combine the references, the examiner recognizes that obviousness can only be established by combining or modifying the teachings of the prior art to produce the claimed invention where there is some teaching, suggestion, or motivation to do so found either in the references themselves or in the knowledge generally available to one of ordinary skill in the art. See *In re Fine*, 837 F.2d 1071, 5 USPQ2d 1596 (Fed. Cir. 1988) and *In re Jones*, 958 F.2d 347, 21 USPQ2d 1941 (Fed. Cir. 1992). In this case, motivation to combine is found in using carbon dioxide to control pH, coagulation, floatation, etc. Carbon dioxide would help in the coagulation of iron and manganese, for example, and floatation as suggested in col 3 lines 18-43.

Applicant's argument that the *In re Keller* doctrine follows only after it has been demonstrated that a person of skill in the art would be motivated to combine the cited references: The Examiner believes that *In re Keller* doctrine is about what constitutes a motivation to combine and teaches that "the test is what the combined teachings of the references would have suggested to those of ordinary skill in the art"

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Re applicant's arguments about the scope of an advisory action, applicant is directed to MPEP chapter 714.12 and 714.13. Since the prosecution is closed after the final action, an advisory action is not for unrestricted further prosecution of the case and need not provide any prima facie evidence.

Conclusion


This action follows an RCE, and is made non-final.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Krishnan S Menon whose telephone number is 571-272-1143. The examiner can normally be reached on 8:00-4:30.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Wanda L Walker can be reached on 571-272-1151. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Krishnan Menon
Patent Examiner


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